

## **REMARKS**

### ***Status of the Claims***

Claims 4 – 14 and 25 - 33 remain pending in the Application. Claims 1– 3, 15 – 24, and 34 – 40 have been previously cancelled.

Claim 4 has been amended to add phrases “wherein the least edge count minimizes unintended illumination” and “synthesizing the arranged polymers in their respective assigned blocks on the substrate” to more clearly describe the claimed invention. Support for the amendments may be found, for example, on page 12, lines 17 and 18, page 11, line 22 to page 12, lines 1 – 2, and page 22, lines 13-20. Claims 5 and 6 have been amended to be dependent on amended claim 5..

Claim 25 has been amended to add phrases “wherein the least edge count minimizes unintended illumination” and “code for synthesizing the arranged polymers in their respective assigned blocks on the substrate” to more clearly describe the claimed invention. Support for the amendments may be found, for example, on page 12, lines 17 and 18, page 11, line 22 to page 12, lines 1 – 2, and page 22, lines 13-20. Claims 26 has been amended to be dependent on amended claim 25.

Applicant has also amended claims 4 and 25 to remove phrases “unassigned” and to correct informalities.

Applicant respectfully asserts that no new matter is presented by these amendments and respectfully request entry of the same.

### ***Rejections under 35 U.S.C. § 101 should be obviated.***

Claims 4-14 remain rejected under 35 U.S.C. §101 as allegedly being directed to non-statutory subject matter. Applicant respectfully disagrees.

However, for the purpose of expediting the issuance of claims, Applicant has amended Claim 4 to recite “...synthesizing the arranged polymers in their respective assigned blocks on the substrate”. Support for the amendment, may be found, for example, page 11, line 22 to page 12, lines 1 – 2, and page 22, lines 13-20.

Applicant respectfully submits that in view of the claim amendment, the rejection of Claims 4-14 under 35 U.S.C. §101 is obviated.

***Rejections under 35 U.S.C. § 112 should be obviated and withdrawn.***

1. Claims 4-14 and 25-33 are rejected under 35 U.S.C. 112, second paragraph, as being allegedly indefinite for failing to particularly point and distinctly claim the subject matter which Applicant regards as the invention. Applicant respectfully disagrees.

Claims 4 and 25 are rejected because the claims allegedly do not make clear regarding the statement “assigning each of the unassigned block to an empty slot.”

However, for the purpose of expediting the issuance of claims, Applicant has amended Claim 4 to recite

“A computer implemented method for arranging polymers for combinatorial synthesis of the polymers on a substrate comprising:  
obtaining a list of polymers to be synthesized on the substrate;  
dividing the polymers to be synthesized on the substrate into a plurality of blocks, wherein each block comprises one or more related polymers from the other blocks;  
selecting a subset of blocks from the plurality of blocks;  
assigning one selected block from the subset of blocks to an empty slot, wherein the one assigned block creates an arrangement of the polymers resulting in a least edge count among the subset of block...”

Additionally, applicant has amended Claim 25 to recite

“A computer software product for arranging polymers for combinatorial synthesis of the polymers on a substrate comprising:  
code for obtaining a list of polymers to be synthesized;  
code for dividing the polymers to be synthesized on the substrate into a plurality of blocks, wherein each of the blocks comprises one or more related polymers from the other blocks; and  
code for selecting a subset of blocks from the plurality of blocks;  
code for assigning one selected block from the subset of blocks to an empty slot,  
wherein the one assigned block creates an arrangement of the polymers resulting in a least edge count among the subset of the blocks...”

Applicant respectfully submits that in view of the claim amendments the rejection of Claims 4-14 and 25-33 under 35 U.S.C. §112 is obviated.

2. Claims 4 and 25 are rejected because the claims allegedly do not make clear regarding the statement “selecting a subset of the blocks from the plurality of unassigned blocks” and the previous step “assignment of each of the unassigned blocks.” Applicant respectfully disagrees.

However, for the purpose of expediting the issuance of claims, Applicant has amended Claim 4 as stated above to state “...selecting a subset of blocks from the plurality of blocks” and removing the previous phrase “assignment of each of the unassigned blocks.”

Applicant respectfully submits that in view of the claim amendments the rejection of Claims 4-14 and 25-33 under 35 U.S.C. §112 is obviated.

3. Claims 4 and 25 are rejected because the claims allegedly do not make clear regarding the statement “creates an arrangement of polymers resulting in a least edge count among the subset of blocks.” Applicant respectfully disagrees.

However, for the purpose of expediting the issuance of claims, Applicant has amended Claim 4 and 25 as:

“..assigning one selected block from the subset of blocks to the empty slot, wherein the one assigned block creates an arrangement of the polymers resulting in a least edge count among the subset of blocks, wherein the least edge count minimizes unintended illumination;”

Support for the amendment may be found, for example, on page 12, lines 17 and 18.

Applicant respectfully submits that the rejection of Claims 4-14 and 25-33 under 35 U.S.C. §112 is withdrawn.

4. Claim 6 is rejected because the claim allegedly do not make clear regarding the limitation of “edge count slot.” Applicant respectfully disagrees. However, for the purpose of expediting the issuance of claims, Applicant has amended Claim 6 to recite “edge count”.

Applicant respectfully submits that in view of the claim amendment the rejection of Claim 6 under 35 U.S.C. §112 is obviated.

5. Claim 7 is rejected because the claim allegedly do not make clear regarding the limitation of “first selecting.” Applicant respectfully disagrees. However, for the purpose of expediting the issuance of claims, Applicant has amended Claim 7 to recite “selecting the first.”

Applicant respectfully submits that in view of the claim amendment the rejection of Claim 7 under 35 U.S.C. §112 is obviated.

***Rejections under 35 U.S.C. § 102 should be withdrawn.***

1. Claims 4, 5, and 7-13 remain rejected under 35 U.S.C. §102 (b) as allegedly being anticipated by Pease et al. (Proc. Natl. Acad. Sci., May 1994, Vol. 91, p. 5022-5026). Applicant respectfully disagrees.

The claimed invention described in independent claim 4, from which claims 5, and 7 -13 depend, is directed to a method for arranging polymers on a substrate to be synthesized. The method comprises an assigning step where minimizing edge count is taken into consideration. Minimizing edge count assists in improving the intensity of each synthesized probe or probes by reducing synthesis factors due to exposure of undesired light exposure, such as light bleeding, diffraction, internal reflection and scattering. Support for the definition may be found, for example, on page 12, lines 11 -18, to page 13 , lines 1 – 3, and page 15, lines 10-11.

Pease et al. generally discusses a synthesis method of light-generated oligonucleotide arrays. Applicant respectfully asserts that the disclosure of Pease et al. does not describe all of the limitations of independent claim 4 as amended. In particular, Applicant asserts that Pease et al. does not describe the limitations of “assigning one selected block from the subset of blocks to an empty slot, wherein the one assigned block creates an arrangement of the polymers resulting in a least edge count among the subset of blocks.” Applicant also asserts that each of claims 5, 7-13 depend from claim 4 and are thus also patentable for the same reasons.

The Applicant respectfully asserts that the Examiner failed to point to any teaching of Pease et al. of a method of minimizing edge count.

Applicant respectfully submits that this rejection of Claims 4, 5, and 7-13 under 35 U.S.C. §102 (b) is withdrawn.

2. Claims 4-6, and 25-27 remain rejected under 35 U.S.C. §102 (b) as allegedly being anticipated by Li et al. (Genomics, 1997, Vol. 40, p. 476-485). Applicant respectfully disagrees.

Li et al. generally discusses base quality statistics for automated large-scale DNA Sequencing. Applicant respectfully asserts that the disclosure of Li et al. does not describe all of the limitations of independent claim 4 and 25 as amended. In particular, Applicant asserts that Li et al. does not describe the limitations of “assigning one selected block from the subset of blocks to an empty slot, wherein the one assigned block creates an arrangement of the polymers resulting

in a least edge count among the subset of blocks.” Applicant also asserts that each of claims 5-6, and 26-27 depend from claim 4 and 25 respectively and are thus also patentable for the same reasons.

The Applicant respectfully asserts that the Examiner failed to point to any teaching of Li et al. of a method of minimizing edge count.

Additionally, Applicant also assert that each of claims 5 & 6 each depend from claim 4 and claims 26 & 27 each depend from claim 25, thus these claims are also patentable for the same reasons.

Applicant respectfully submits that in view of the above reasons, the rejection of Claims 4-6, and 25-27 under 35 U.S.C. §102 (b) is withdrawn.

***Rejections under 35 U.S.C. § 103 should be obviated.***

Claim 6 is rejected under the first paragraph of 35 U.S.C. §103 (a) as allegedly being unpatentable by Pease et al. (Proc. Natl. Acad. Sci., May 1994, Vol. 91, p. 5022-5026), as applied to claims 4, 5, and 7 – 13, above, and further in view of Fodor et al. (Science, 1991, Vol. 251, p. 767,-773). Applicant respectfully disagrees.

As discussed above, Pease et al. discusses a synthesis method of light-generated oligonucleotide arrays. Applicant respectfully asserts that the disclosure of Pease et al. does not describe all of the limitations of independent claim 4 as amended. In particular, Applicant asserts that Pease et al. does not describe the limitations of “assigning one selected block from the subset of blocks to an empty slot, wherein the one assigned block creates an arrangement of the polymers resulting in a least edge count among the subset of blocks.”

The Applicant respectfully asserts that the Examiner failed to point to any teaching of Pease et al. of a method of minimizing edge count. In addition, Fodor et al. fails to remedy the deficiencies of Pease et al. Applicant also asserts that each of claims 5, 6 7-13 depend from claim 4 and are thus also patentable for the same reasons.

Applicant respectfully submits that in view of the above reasons, the rejection of Claims 4 – 13, under 35 U.S.C. §103 (a) is withdrawn.

**CONCLUSION**

For these reasons, Applicant believes all pending claims are now in condition for allowance. If the Examiner has any questions pertaining to this application or feels that a telephone conference would in any way expedite the prosecution of the application, please do not hesitate to call the undersigned at (408) 731-5000.

Except for issue fees payable under 37 C.F.R. §1.18, the Commissioner is hereby authorized by this paper to charge any additional fees during the entire pendency of this application including fees due under 37 C.F.R. §§1.16 and 1.17 which may be required, including any required extension of time fees, or credit any overpayment to Deposit Account No. 01-0431. This paragraph is intended to be a CONSTRUCTIVE PETITION FOR EXTENSION OF TIME in accordance with 37 C.F.R. §1.136(a)(3).

Respectfully submitted,

October 30, 2007

By /Lisa T. Kajisa/  
Lisa T. Kajisa  
Reg. No. 57,516

**Customer No.: 22886**  
Legal Department  
Affymetrix, Inc.  
3420 Central Expressway  
Santa Clara, CA 95051  
Tel: 408/731-5000  
Fax: 408/731-5392